

**WHAT IS CLAIMED IS:**

1. A characteristic amount calculating device for soldering inspection, comprising:

design information inputting means for inputting design information of an inspection object;

inspection standard inputting means for inputting an inspection standard;

solder shape calculating means for calculating shape information of a solder fillet according to said design information;

inspection image calculating means for calculating an inspection image according to said shape information of said solder fillet;

characteristic amount calculating means for calculating a characteristic amount from said inspection image;

solder shape defective/nondefective determining means for determining whether the solder shape is defective or nondefective from said shape information by using said inspection standard; and

characteristic amount outputting means for displaying or outputting said characteristic amount and a result of defective/nondefective determination.

2. A characteristic amount calculating device

according to claim 1, wherein said design information includes a component shape and a land shape, and said solder shape calculating means calculates a plurality of solder shape data according to said component shape and said land shape input.

3. A characteristic amount calculating device according to claim 1, wherein said design information includes a component mounting position, a solder wicking position, a solder spreading position, and a solder basic shape independent of design/manufacture conditions; and

said solder shape calculating means calculates a plurality of solder shape data according to said component mounting position, said solder wicking position, said solder spreading position, and said solder basic shape input.

4. A characteristic amount calculating device according to claim 1, wherein said solder shape calculating means calculates three-dimensional coordinate data by using a fillet curve showing the contour of said solder fillet, a wicking curve showing a solder wicking condition on a component surface, and a spreading curve showing a solder spreading condition on a land surface.

5. A characteristic amount calculating device according to claim 1, wherein said inspection image

calculating means has inspection image obtaining means for obtaining said inspection image by using an inspection image obtaining function indicating the intensity of said inspection image with respect to the characteristic amount including the angle or thickness of said solder fillet.

6. A characteristic amount calculating device according to claim 5, wherein said inspection image obtaining function is calculated by using an actual inspection image of a solder fillet formed on a land at an unmounted portion as a function showing the intensity of said inspection image with respect to the characteristic amount including the angle or thickness of said solder fillet.

7. A characteristic amount calculating device according to claim 1, wherein said inspection standard includes a solder amount standard, a solder wicking standard, and a solder spreading standard.

8. A characteristic amount calculating device according to claim 7, wherein said solder shape defective/nondefective determining means performs the defective/nondefective determination for a virtual solder shape by using said inspection standard specifying a defective range on a solder amount or a solder wetting

amount.

9. A characteristic amount calculating device according to claim 1, wherein said solder shape defective/nondefective determining means classifies the defective solder shape into a plurality of ranks according to the degree of defective.

10. A characteristic amount calculating device according to claim 1, wherein said characteristic amount outputting means outputs information selected from the group consisting of a solder shape, solder amount, wetting amount, and inspection image shown by three-dimensional coordinate data, in addition to said characteristic amount and said defective/nondefective determination result.

11. A characteristic amount calculating device according to claim 1, wherein said characteristic amount outputting means specifies a threshold related to said characteristic amount to thereby display a solder shape determined as undertight or overtight.